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THE

IMPERIAL

Gas Machine.

DENNY BROTHERS & CO.,

Gas Engineers and Contractors,

107 LIBERTY STREET,

NEW YORK.

81 RANDOLPH STREET,

CHICAGO.

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CATALOGUE AND PRICE LIST.

DENNY BROTHERS & CO.,

Gas Engineers AND Contractors,

NEW YORK,
CHICAGO,
CINCINNATI.

THE

IMPERIAL GAS MACHINE.

DESIGNED FOR LIGHTING

RESIDENCES, FACTORIES, HOTELS,
COLLEGES, CHURCHES,
PUBLIC BUILDINGS, R. R. DEPOTS &C.

Gas Supplies of every Description.

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CORLIES, MACY & CO., STATIONERS & PRINTERS,
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IMPERIAL GAS MACHINE.

THE IMPERIAL GAS MACHINE is an Automatic Gas-Making Apparatus designed for supplying Residences, Hotels, Factories, Mills, Churches, Colleges, Public Buildings, or groups of buildings, with a safe and cheap illuminating Gas.

The Machine is *simple*, *durable* and *trustworthy*, being made entirely of copper, and requiring no more care or attention than is necessary in filling, cleaning and trimming one kerosene lamp.

THE GAS IS MADE by impregnating common air with the vapor of Gasolene. It is then conducted through iron pipes and ornamental fixtures, the same as ordinary street gas, and in burning through either the open or Argand burners it gives a clear, bright light, fully equal to the best coal gas.

THE COST OF THE GAS varies according to the price of Gasolene, from seventy-five cents to one dollar and fifty cents per 1,000 cubic feet.

NO ARTIFICIAL HEAT is used in making the Gas, and buildings lighted with it are insured by all the American and British Insurance Companies at the same rates as would be charged if coal gas were used.

The material from which the Gas is made is known commercially as Gasolene. It is one of the light products of petroleum, and can be obtained in large or small quantities from oil refiners or dealers, in all our large cities. The price of Gasolene for the past three years has averaged 20 cents per gallon.

SAFETY.

The question naturally arises with those who have not examined the subject, "Is there any danger to be apprehended from using a Gas Machine?" Experience has clearly demonstrated the fact that a good Gas Machine, properly set up, is equally *as safe as the use of the ordinary Coal Gas in cities*, than which there is no safer method of illuminating buildings. There can be no question as to the safety of using Gas delivered through permanent pipes and fixtures. The only *possible* danger is from handling the Gasolene; if this were done in the building the escaping vapor might combine with the air and form an explosive gas, the same as if a defective meter or gas-pipe should leak. Therefore, Gasolene should never be handled or stored in the building.

With the IMPERIAL, the Gasolene is always handled in the open air, where any vapor arising harmlessly passes off, and it is stored outside of and at any desired distance from the building. Nothing enters the building except the Gas as manufactured passing through the pipes.

It will be observed that our Machine is *Automatic* in its operation; there is no Gasometer: no supply is kept on hand; the Gas is made just as it is used, whether for one burner or for the whole number for which the Machine is rated.

We have been making and placing these Machines for more than five years, and *never, in a single instance, has an accident of any kind occurred through their use.* The fact that the Insurance Companies allow the use of our Ma-

chines, without increasing the rates, for buildings in which the ordinary street gas has been previously used, may be received as conclusive evidence of their *absolute safety.*

SIMPLICITY AND RELIABILITY.

A Gas Machine to be reliable *must* be simple, especially so if it is to be attended to by the gardener, or an ordinary laborer, as is so generally the case in lighting Country Residences. We call particular attention to this feature of the IMPERIAL: *it is so simple that the smallest possible amount of intelligence is requisite in the person who has it in charge.* After the Machine is placed and connected, ready for operation, no other attention is necessary than to wind up the weight occasionally and fill with Gasolene three or four times a year.

When the purchaser is within reasonable distance, we prefer to set the Machine ourselves, sending competent mechanics for that purpose and charging actual cost. In cases where the distance is too great to send our own employees, we send printed instructions, by following which any competent gas-fitter or machinist can properly set the Machine.

It is a fact of considerable importance that every Machine we have ever sold is now in operation and giving satisfaction. None have ever been discontinued or displaced by any other Machine.

DURABILITY.

A good Machine, well made of hard rolled copper, will last a lifetime. It will not corrode. There is nothing in Gasolene that can injure it. The soldered joints are its strongest parts. It will be as perfect in ten years as when first placed. Many years' experience in the business

has demonstrated the fact that copper is the only metal to be depended upon to make a durable Gas Machine; that while Machines can be made of other and cheaper metals, it is more economical to use a good material, thereby saving all expenses for repairs, and have a Machine that will not get out of order.

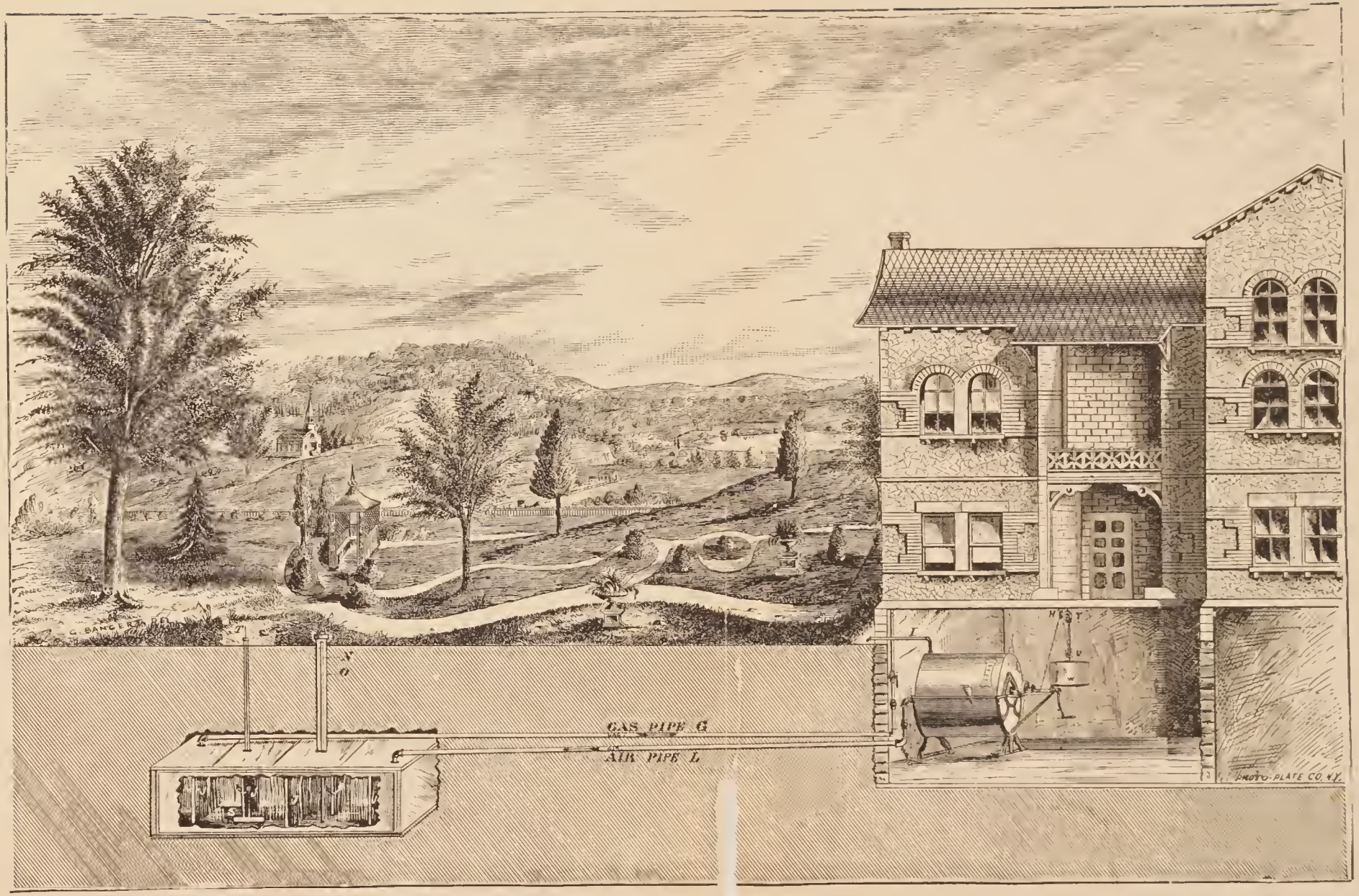
COST OF THE GAS.

As has been already stated, the cost of the Gas varies according to the price of Gasolene. With *any* Gasolene Machine it requires between $4\frac{1}{2}$ and 5 gallons of Gasolene to make light equal to 1,000 cubic feet of 16-candle power coal gas. From repeated tests with Gasolene of 86° specific gravity, at a temperature of 60° Fh., we find that $4\frac{7}{10}$ gallons produces 1,000 cubic feet of 16-candle power Gas. With Gasolene at 20 cents per gallon (the average price) a Gas, equal in illuminating power to good coal gas, will cost less than $1.00 per 1,000 feet.

THE QUALITY OF THE GAS

made by our Machine is unexceptionable. It has an illuminating power of from 14 to 20 candles; is entirely free from sulphur or other impurities; emits no odor while burning; will not smoke when burned through suitable burners; and, with the Argand burner, produces a soft, mellow light, similar to that made by the German Student Lamp.

Fig. 1.



MANNER OF SETTING MACHINES.

There has always been more or less controversy among Gas Machine manufacturers as to the best mode of setting up the Machines. Some have contended that the best plan is to place the Air Pump in the building lighted, and the Carbureter or Generator in a vault outside;

Others, that the Generator should be entirely buried in the earth, and the Pump placed in the building;

Others, that the Generator should be in a vault, and the Pump in a small building directly over the vault;

Others, that the whole Machine should be placed in a vault. Reasonable arguments have been advanced in support of each of these plans, and reasonable objections have been urged against each.

The fact is, that the manner of setting the Machine should be governed very largely by the nature of the work which has to be done. Recognizing this fact, we have, for a long time past, followed that plan of placing Machines which the circumstances seemed to demand. We have never yet failed of complete success.

It will be seen by reference to our illustrations and description of Machines, that the IMPERIAL is adapted to all of the above-mentioned plans, and that in each case we retain the distinguishing features of the Machine.

The claim has been made by certain parties, that they hold a patent and sole right of placing an Air Pump in the building, connected with a Carbureter outside. This claim has been carried to the highest Court and decision rendered against them, notwithstanding which, it is sometimes presented to parties who may be ignorant of the facts. We have only to add that we fully guarantee all purchasers against any claim whatever of infringement of patents, and hold ourselves responsible for any claim for damages.

DESCRIPTION OF MACHINE.

Fig. "1" represents the IMPERIAL Machine, as usually placed for lighting Residences, Churches, Railroad Depots, Factories, Hotels, or any building or group of buildings where less than five hundred burners are to be lighted.

It consists of two parts—the Air Pump, which may be placed anywhere inside the building lighted; and the Carbureter, which is entirely buried in the earth, at any desired distance. Gasolene is supplied from the surface of ground through filling tube, "N," the vent being the larger tube, "O." The wire, "T," attached to float, "S," indicates the quantity of Gasolene in the Carbureter. The wicking, arranged in vertical columns, draws up the Gasolene, and holds it suspended, ready for the action of air from Air Pump. Air is drawn by the pump, from outside the building, through induction pipe, "I," and forced through air pipe, "L," to the Carbureter, where, in its course through the passages, "J, J, J, J," it becomes charged with vapor, and then passes through gas pipe, "G," to the burners.

For extreme simplicity and thorough reliability this form of the IMPERIAL Gas Machine cannot be excelled.

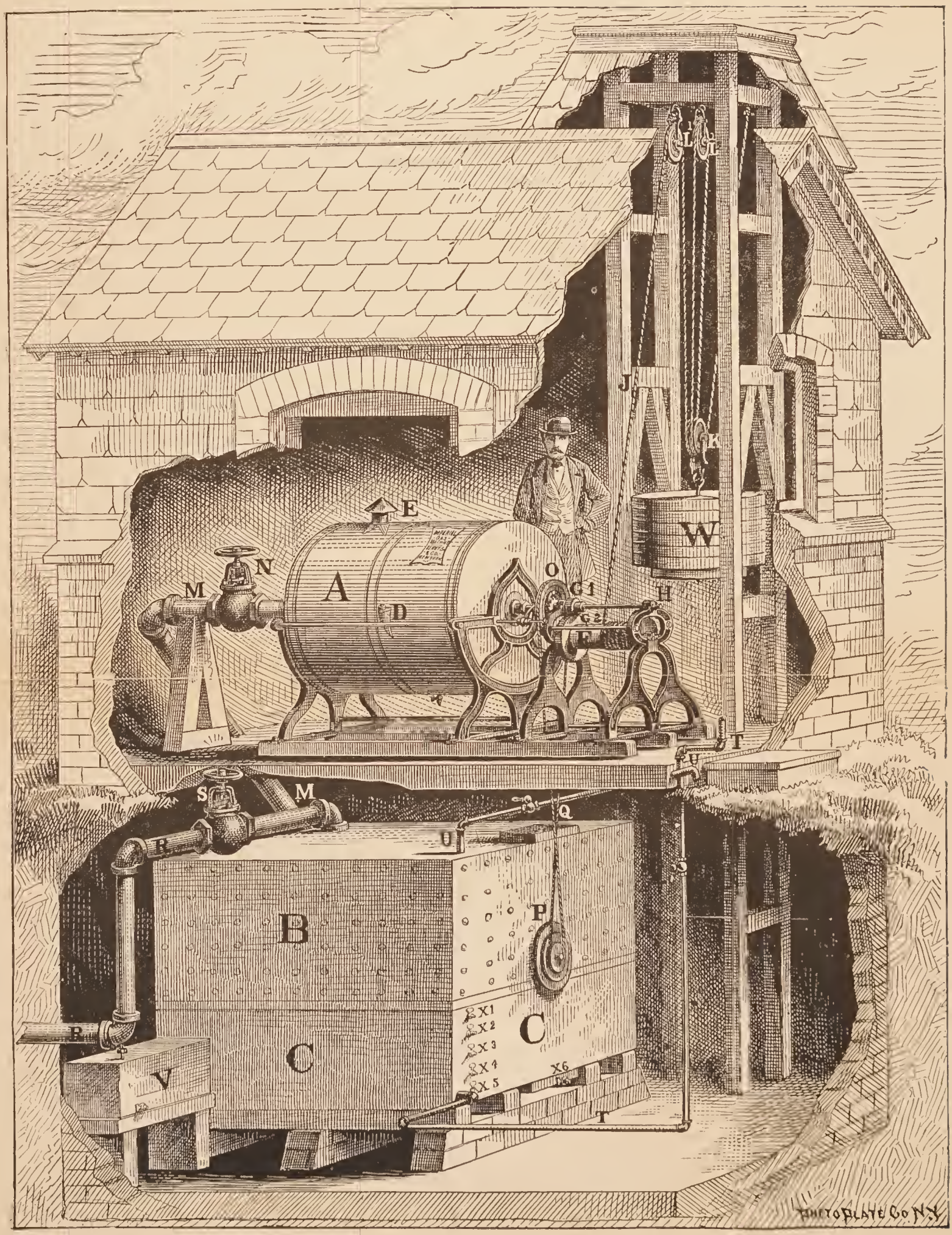
Fig. "2" represents the IMPERIAL Machine as constructed and placed for lighting Hotels, Factories, Colleges, or other large buildings, where five hundred or more burners are to be used.

It is usually placed in a substantial building with ground floor and cellar, as shown in the cut, and at a suitable distance from the main building.

The Pump, "A," being operated by means of weight, "W," inducts common air at inlet, "E," and delivers the same through air pipe, "M," to the Carbureter.

The Carbureter is placed in lower part of building on

Fig. 2.



substantial brick piers. It is horizontally divided near the centre, the lower part forming the Gasolene reservoir, "C," and the upper part the Carbureter proper, "B." The Carbureter is divided into five or more pans, which, in turn, are divided into narrow passages, and so arranged as that the air must necessarily pass through the whole series before entering the gas pipe, "R." The Carbureter proper is in *no sense a reservoir for the Gasolene*, but is constantly supplied from the reservoir *in exact proportion to the quantity of gas delivered.* This is done by means of an elevating feed wheel, driven by feed belt, "Q," and cone pulleys, "O" and "P," the power being derived from main shaft of Air Pump.

The Air Pump delivering to the Carbureter a *definite quantity of air* at each revolution, and the feed wheel supplying *a definite quantity of Gasolene*, it follows that *the gas will always be the same in quality and illuminating power;* and the Feed Pulleys being *graduated*, it will be seen that *the relative proportions of air and Gasolene may be regulated, and thus any desired quality of gas secured and maintained.* The Carbureter passages in this form of machine are supplied with vertical columns of wicking (the same as in Fig. "1"), which take up the Gasolene fed to them, and hold it suspended in minute particles, until evaporated by the current of air, which, in its passage through the Carbureter, becomes charged with the vapor and converted into illuminating gas before entering the gas pipe, "R."

Fig. "3" represents the IMPERIAL Machine with the Air Pump and Carbureter combined, the complete Machine being placed in an underground vault, at any desired distance from the building lighted. Gasolene is supplied two or three times a year through pipe "D," which extends to surface of ground. The weight may be wound up by crank "K," without entering the vault.

The Machine is divided into three separate compartments, one of which contains the Air Pump, one the Gasolene, and the other a series of passages, with fibrous ma-

terial so arranged as to hold the Gasolene suspended in minute particles, so that it may be readily vaporized. It is in the latter compartment (denominated the Carbureter) that the gas is made. The weight, "W," operates by means of the cable, "V," upon the shaft, "A," to which is attached the air wheel, and a wheel for supplying or feeding Gasolene to the Carbureter. The Air Wheel inducts common air, and forces it through the Carbureter and gas pipes to the burners. In its course through the passages of the Carbureter, the air becomes charged with the vapor, and is converted into an illuminating gas before entering the pipes. By the peculiar construction of the air wheel an unvariable pressure is maintained in all the pipes connected with the Carbureter. When one or more burners are opened, the wheel revolves just fast enough to supply the outlet. When all the burners are closed the wheel is stationary.

This style of Machine is peculiarly adapted for manufacturing purposes. By means of the feed device an intense heat may be obtained at very slight cost.

RECAPITULATION.

1st. The IMPERIAL is *absolutely safe*, the Gasolene being always handled in the open air, at any desired distance from the building lighted.

2d. The *simplicity* of its construction secures its absolute *reliability*.

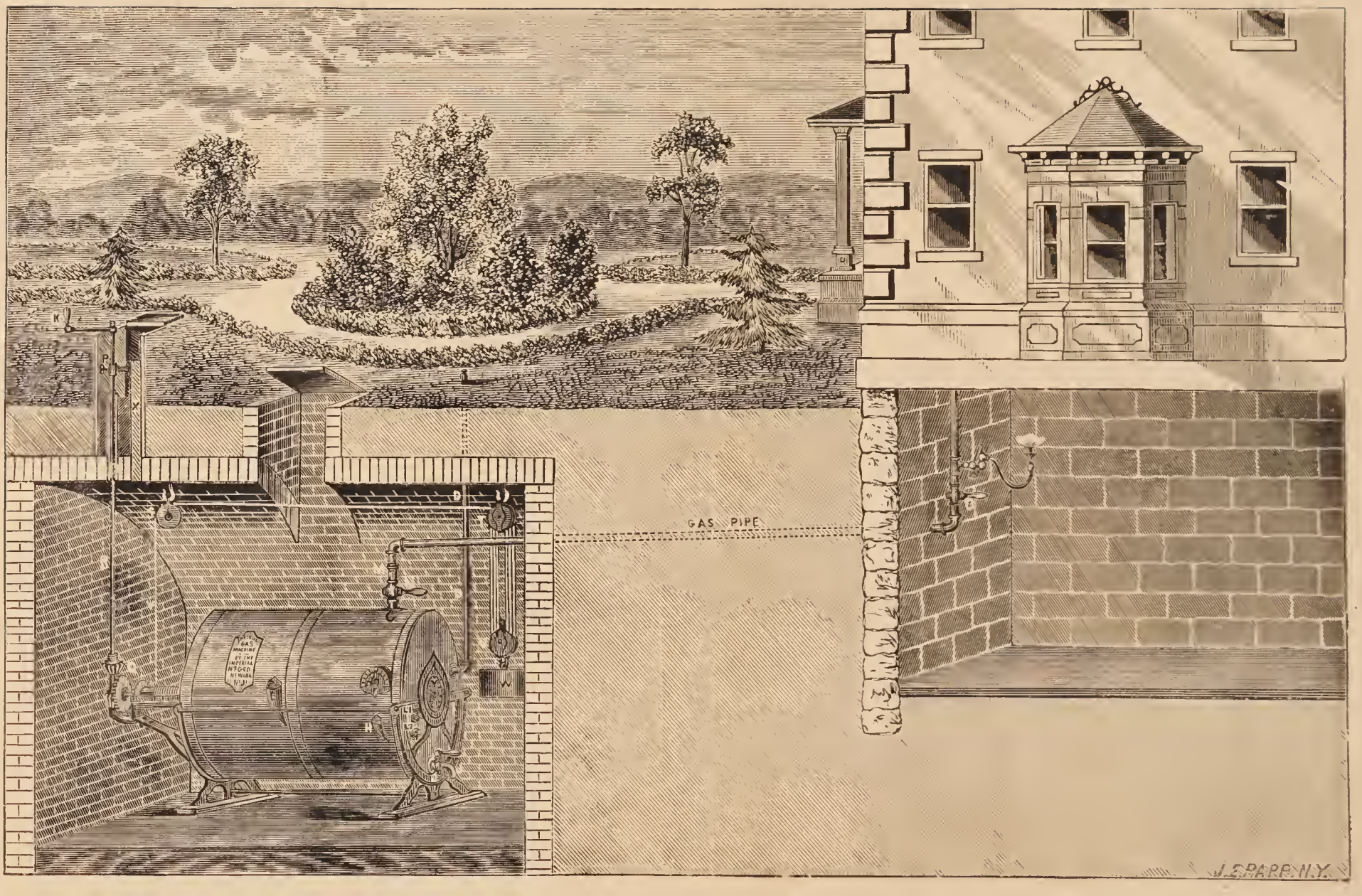
3d. It requires a minimum amount of attention.

4th. The Machine is *automatic* in its operation, and *cannot run otherwise than right*.

5th. The lights are always clear and steady, with either the Argand or open burners.

6th. Our Machines being made entirely of copper, and there being scarcely a perceptible motion, they are not liable to derangement, and will *last a life-time*.

Fig. 3.



7th. They operate equally as well in *winter* as in summer.

8th. The *open burner* can be used with satisfaction as well as the Argand.

9th. We never require alterations in the piping where coal gas has been satisfactorily used.

10th. The weight can be wound up while the Machine is in operation.

11th. The lights are *always uniform.*

12th. Our Air Pump is *stronger,* and is capable of giving double the pressure of any other Air Pump.

13th. We use up every drop of the gasolene. *No residuum.*

14th. The evaporating surface is greater than in any other Machine.

15th. The capacity of the IMPERIAL, as rated, is equal, in every respect, to any Machine made.

16th. The IMPERIAL has no glass gauges, no combination of stop-cocks, no automatic valves, and no springs—all of which are liable to derangement.

THE RATING OF MACHINES.

There is no invariable rule by which to determine the number of burners that a Machine will supply. The rating is entirely arbitrary with each manufacturer. One may rate a Machine with a Pump and Carbureter of a given size as a 100-light Machine, while another may rate the same size Machine as a 50-light. This fact accounts, to a great extent, for the comparatively cheap prices at which some Machines are offered.

The IMPERIAL is rated low enough to *insure* every Machine supplying, *under* ALL *circumstances, the full number of burners stated.* Our Carbureters have a Gasolene capacity as great and a carbureting surface at least one-third greater than any other Machine made.

PRICE LIST

For Copper Machines, warranted to supply the full number of Burners, as rated.

Size.	No. of Burners	Gasolene Capacity.	Price.
No. 1	20	70 gallons.	$260
2	30	100 "	375
3	50	160 "	500
4	75	200 "	650
5	100	250 "	800
6	150	300 "	1,000
7	200	350 "	1,150
8	300	500 "	1,500
9	400	625 "	1,750
10	500	750 "	1,950
11	800	1,600 "	3,200
12	1,000	1,900 "	4,000

Prices for larger Machines subject to special contract.

PIPING AND FIXTURES.

We solicit from parties who are building, an opportunity to estimate for the entire work of Piping, Fixtures and Gas Machine. We employ a large force of skilled mechanics, and can guarantee as to Piping, good work and low prices. We are constantly filling large orders for Gas Fixtures, and can give to our patrons the benefit of low-

est trade discounts. Where we do the whole work, we thereby make ourselves responsible for the success of everything connected with the lighting of your building.

If you are building without intending to at once introduce Gas, we suggest that you at least have your building piped, as the cost of piping is merely nominal when done at the proper stage of erection.

All large Coal Gas Companies usually prescribe a scale of piping which they require to be conformed to, the following being that usually adopted and which we recommend.

Size of Pipe.	Greatest Length Allowed.	Greatest Number of Burners Allowed.
$\frac{3}{8}$ inch.	20 feet.	3
$\frac{1}{2}$ "	30 "	6
$\frac{3}{4}$ "	50 "	20
1 "	70 "	35
$1\frac{1}{4}$ "	100 "	60
$1\frac{1}{2}$ "	150 "	100
2 "	200 "	200
$2\frac{1}{2}$ "	300 "	300
3 "	450 "	450

GASOLENE.

The large number of Gas Machines now in use has created a corresponding demand for Gasolene, and, as is usual in such cases, the desire of the dealers to undersell each other has led to the supplying, in many instances, of an inferior article. For this reason, and to accommodate those using the IMPERIAL Machine, we have arranged to keep constantly on hand a stock distilled especially for

us, and which is known as "Imperial Gasolene." We will fill all orders for Gasolene promptly, and warrant it in every instance.

When ordering Gasolene state what Machine you are using, as some Machines require a lighter gravity than others.

FOR MECHANICAL PURPOSES.

This Gas may be used equally as well as coal gas for all purposes wherein the latter has superseded the use of charcoal—as in heating soldering irons, brazing metals, etc.; an exceedingly hot blast being obtained at small cost. It is also used for heating purposes in restaurants.

TO LARGE GAS CONSUMERS.

Many people have the idea that these Machines are designed for lighting only those buildings that have no means of obtaining the ordinary coal gas from city gas companies, while the FACT is that *we are placing as many Machines for buildings within the limits of street gas* as we are for those that are outside such limits.

We call your especial attention to the following facts which have brought about this result:

1st. *The Gas made by the* IMPERIAL *Machine is as good in every respect as coal gas, and cannot possibly cost more than one dollar and thirty cents per thousand cubic feet*, as compared with sixteen-candle power coal gas, while the average price of the latter is about three dollars and fifty cents per thousand, and it is seldom to be found of an illuminating power of more than fourteen candles.

2d. The IMPERIAL is so constructed, and our method of placing Machines is such, that *no difficulty is met with in the matter of insurance. The rates will be no greater with our Machine than with coal gas.*

3d. The IMPERIAL is the only Gas Machine on the market that will give *equal satisfaction with either the open or the Argand burner.*

It is on the score of economy that we are succeeding, in so many instances, in causing the use of street gas to be discontinued, and our Machine adopted in its place. It is, therefore, simply a matter of figures. If you will take your gas bills for a year back, you can readily find out how much gas you have paid for. Then find the amount you would save annually if the price were reduced to $1.00 per thousand. In addition to the first cost of Machine, (see our Price List) add from $30.00 to $100.00 (according to size) for placing and connecting it, and you may see at a glance about how long it would take for the savings to repay the original outlay. *Where this would result in from one to three years, it is undoubtedly a real economy to put in an Imperial Machine.*

SUNDRIES.

ARGAND BURNER,

With Open Spring Holder.

MADE ESPECIALLY FOR GASOLENE GAS.

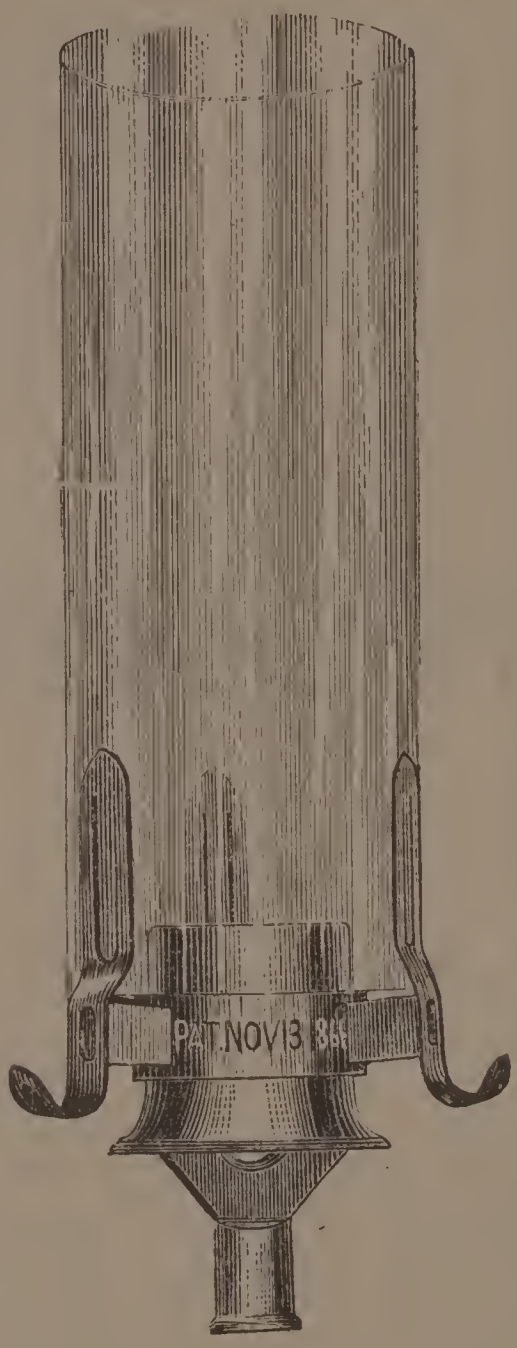


Fig. 5.

PRICE.

EACH.	PER DOZ.	PER GROSS.
$1.00	$10.00	$98.00

NOISELESS ARGAND BURNER,

With Open Spring Holder.

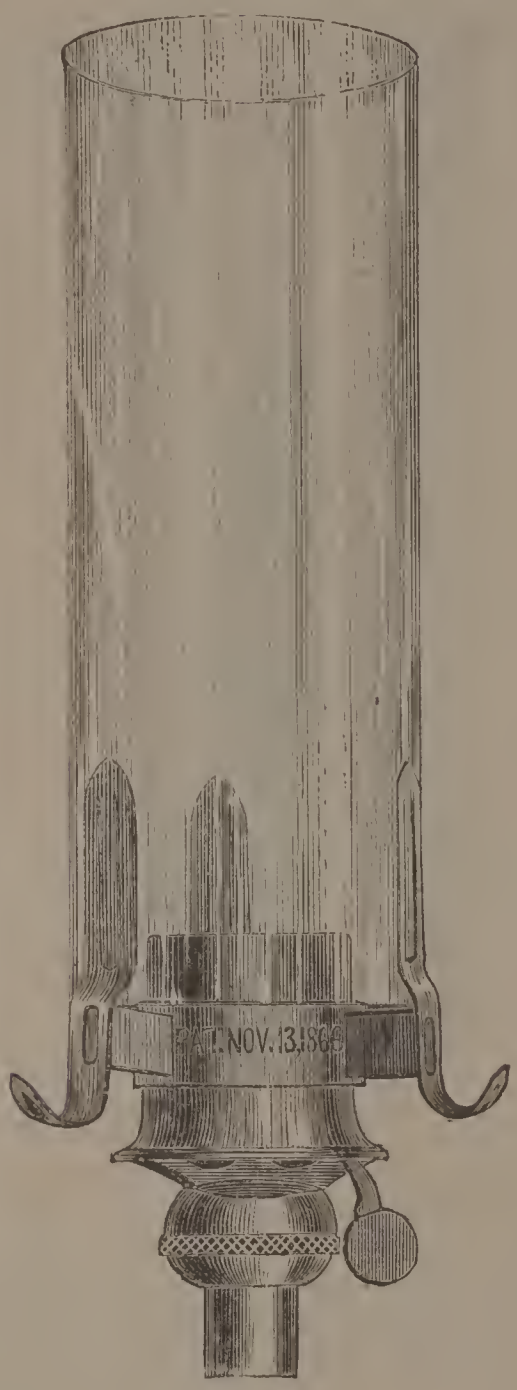


Fig. 6.

A new and improved Argand Burner, constructed on scientific principles, and especially adapted for Gasolene Gas. It is entirely noiseless under all pressures.

PRICE.

EACH.	PER DOZ.	PER GROSS.
$1.25	$12.50	$125.00

Chimneys for Argand Burners.

FIG. 7.

PRICE.

	EACH.	PER DOZ.
6 and 7 inch, French Flint, - -	10 cts.	$1.00
6 inch, half ground, - - - -	20 cts.	2.00
7 " " - - - -	25 cts.	2.50
8 " " - - - -	30 cts.	3.00
6 " Opal, - - - - -	20 cts.	2.00

PATENT

AUTOMATIC LEVER BURNER.

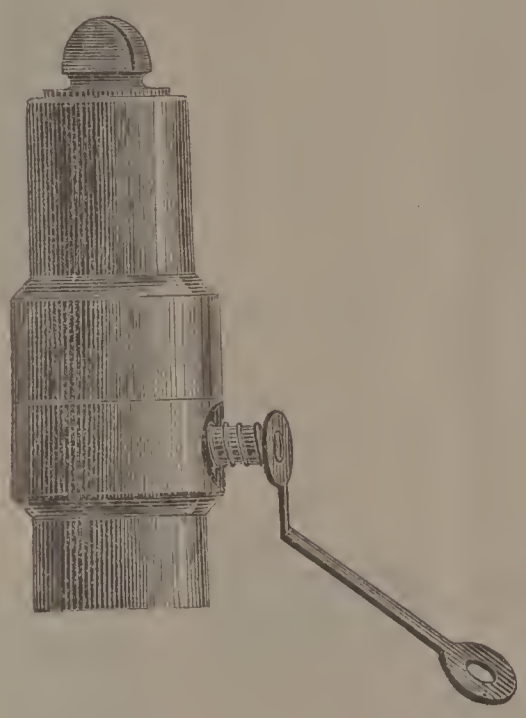


FIG. 8.

An "adjustable" open Burner, especially designed for Gasolene Gas. The latest improvement. All Brass, and used with any size of Lava Tip.

PRICE.

EACH.	PER DOZ.	PER GROSS.
50 cts.	$5.00.	$55.00.

CLOUGH'S PATENT BURNER,

For Gasolene Gas.

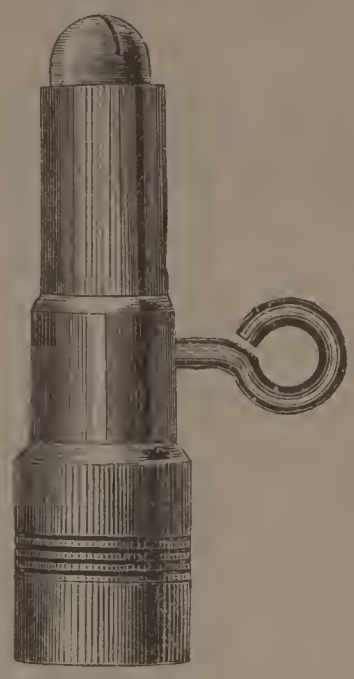


Fig. 9.

PRICE.

EACH.	PER DOZ.	PER GROSS.
35 cts.	$3.60.	$43.20.

BRASS LAVA TIP BURNER,

For Gasolene Gas.

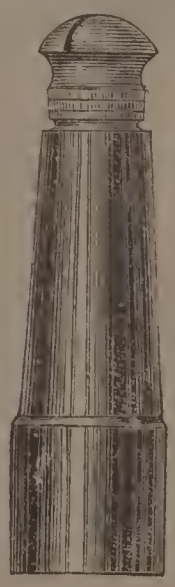


Fig. 10.

PRICE.

EACH.	PER DOZ.	PER GROSS.
10 cts.	$1.00.	$8.80.

TAPER SLIDE AND KEY.

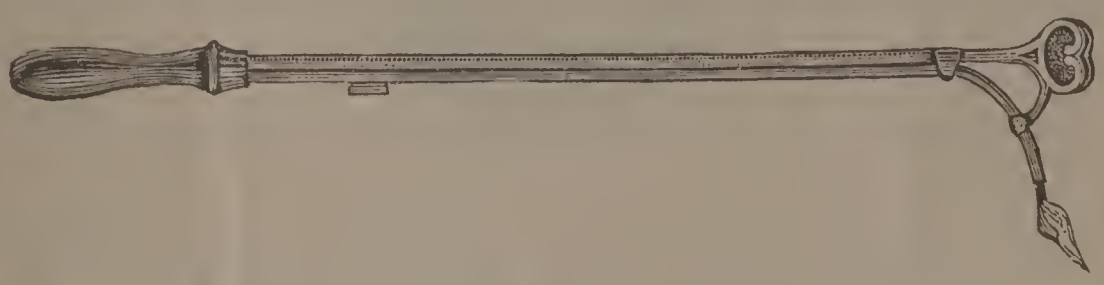


FIG. 11.

Each, - - - $2.00.

WAX TAPERS.

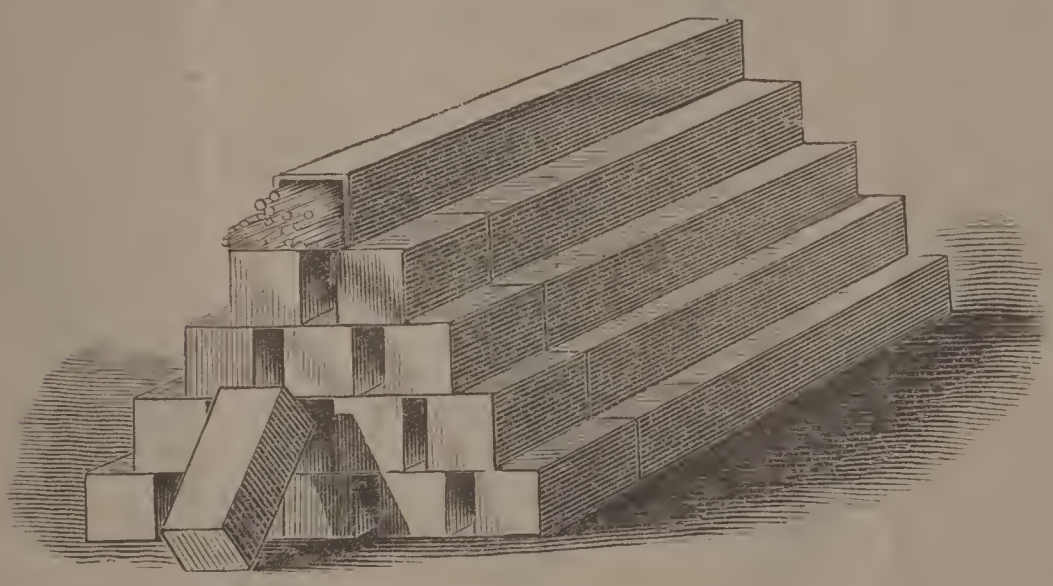


FIG. 12.

PUT UP 30 IN A BOX ($\frac{1}{4}$ POUND.)

Per Box, - - - - - 30c.
Per Lb., - - - - - - $1.00.

OPAL GLOBES.

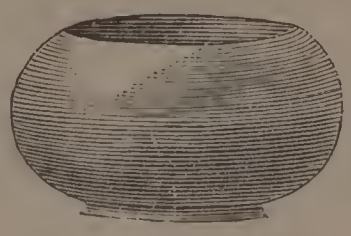


FIG. 13.

DESIGNED EXPRESSLY FOR GASOLENE GAS.

	EACH.	PER DOZ.
5x7½ inches,	.60	$ 5.50
5x9 "	$1.50	14.25
6x12 "	5.00	46 00
7½ inches, " especially for Argand Burners,"	.75	7.00

TRIPOD GLOBE HOLDER,

FOR 4 AND 5 INCH GLOBES.

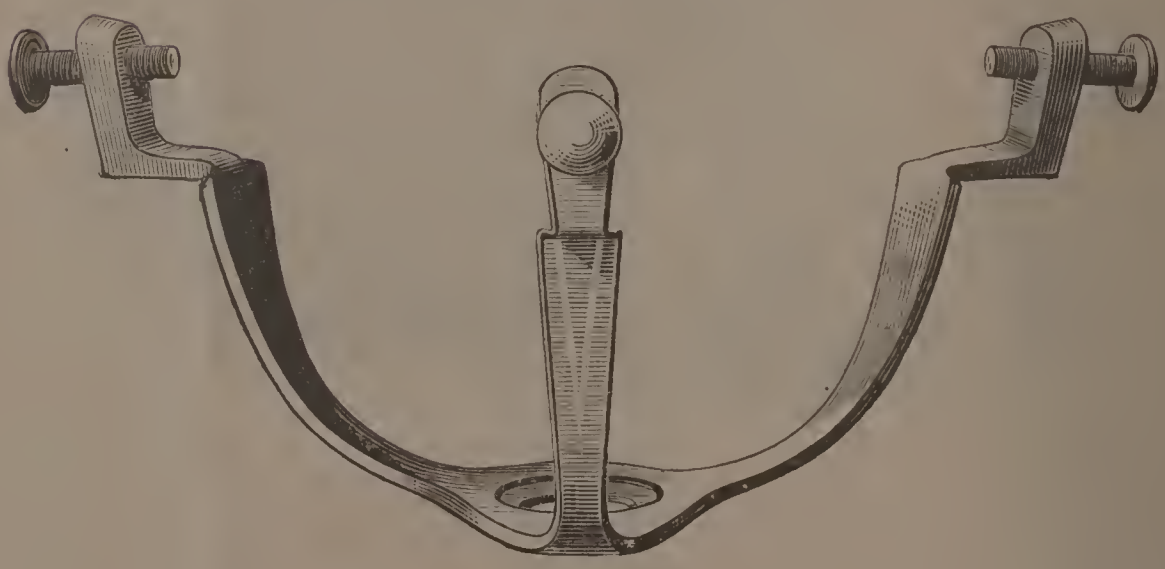


FIG. 14.

EACH.	PER DOZ.	PER GROSS.
20c.	$1.60.	$16.00.

TRIPOD GLOBE HOLDER,

FOR 4 AND 5 INCH GLOBES.

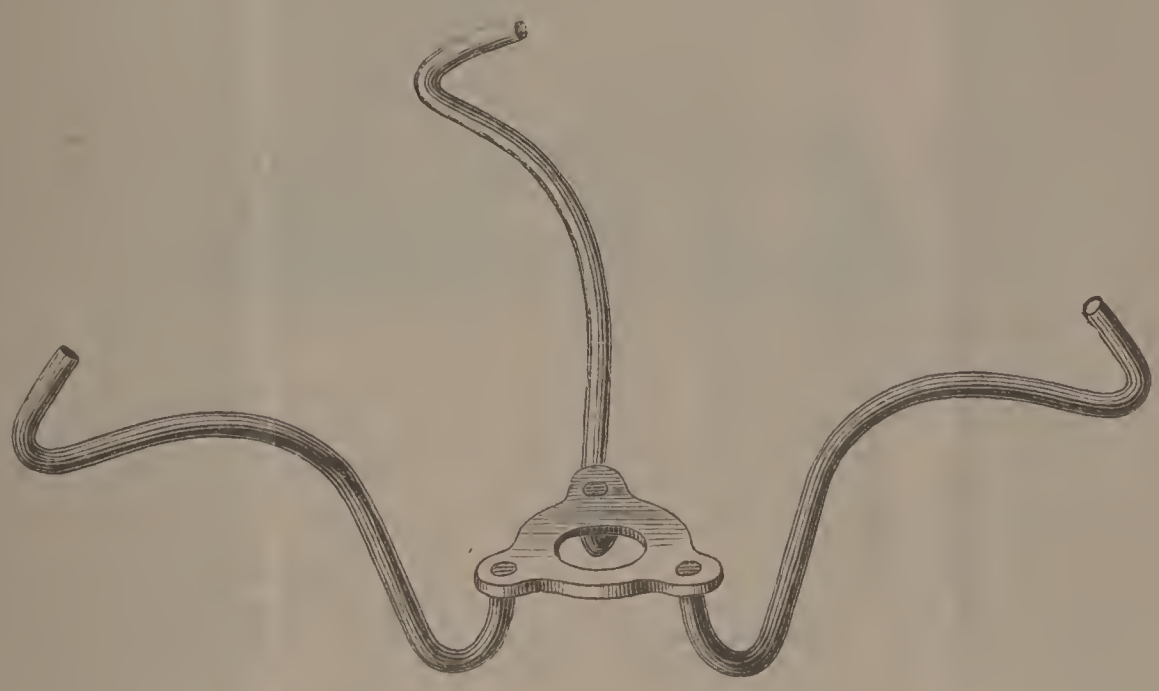


FIG. 15.

EACH.	PER DOZ.	PER GROSS.
15c.	$1.20	$12.00.

BURNER CLEANER.

FIG. 16.

EACH.	PER DOZ.
10c.	75c.

FAUCET AND HOSE,

FOR TRANSFERRING GASOLENE FROM BARREL TO UNDER-GROUND TANK.

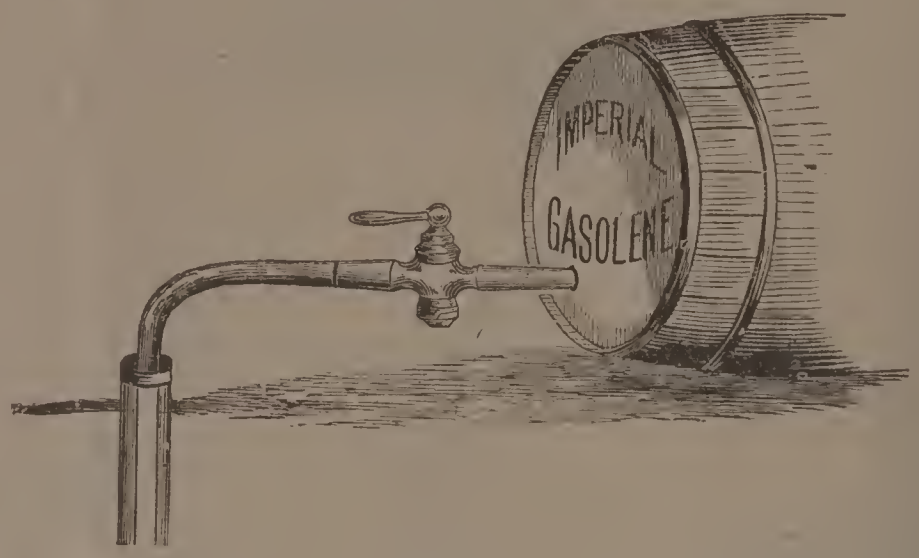


FIG. 17.

EACH.	PER DOZ.
$1.50.	$13.50.

WIRE CORD.

FOR GAS MACHINE WEIGHTS.

(Roebling's.)

Trade No.	Diameter.	NET PRICE, PER FOOT.		
		Iron.	Copper.	Tinned.
26	$\frac{1}{4}$	7½	16	9
27	$\frac{7}{32}$	6½	13	7½
27½	$\frac{3}{16}$	5	10	6
28	$\frac{1}{8}$	3	6	4
29	$\frac{1}{16}$	2	4	3

STEEL GAS PLYERS (Polished.)

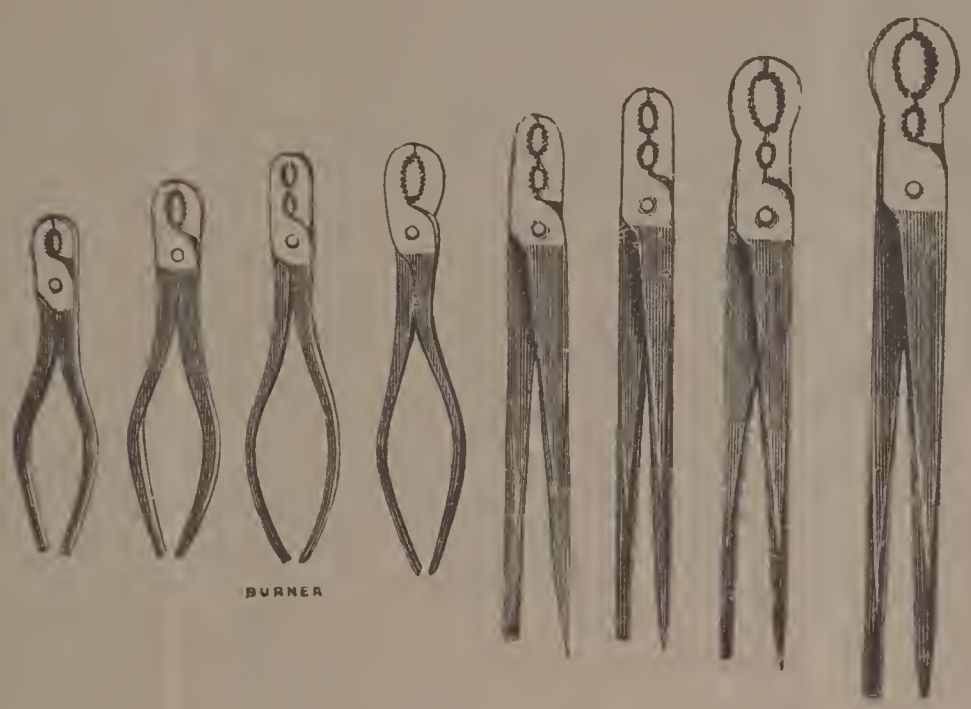


FIG. 18.

6 INCH.	7 INCH.	8 INCH.	10 INCH	12 INCH
$1.25.	$1.55.	$1.80.	$2.50.	$3.00.

HYDROMETERS,

FOR TESTING THE QUALITY OF GASOLENE.

EACH.	PER DOZ.
$1.50	$15.00

DENNY BROTHERS & CO.,

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